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<input type="checkbox"/>	L14	5877402.pn.	1
<input type="checkbox"/>	L13	L12 not l3	33
<input type="checkbox"/>	L12	l9 same L11	35
<input type="checkbox"/>	L11	(untranslated adj region\$) or utr\$	11490
<input type="checkbox"/>	L10	l8 same L9	647
<input type="checkbox"/>	L9	l2 same l7	1287
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<input type="checkbox"/>	L6	L5 not l3	0
<input type="checkbox"/>	L5	l2 and L4	4
<input type="checkbox"/>	L4	mcfadden.in.	383
<input type="checkbox"/>	L3	l1 and L2	5
<input type="checkbox"/>	L2	chloroplast or plastid	3427
<input type="checkbox"/>	L1	daniell.in.	83

END OF SEARCH HISTORY

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Search Results - Record(s) 1 through 5 of 5 returned.

☐ 1. Document ID: US 6680426 B2

L3: Entry 1 of 5

File: USPT

Jan 20, 2004

US-PAT-NO: 6680426

DOCUMENT-IDENTIFIER: US 6680426 B2

TITLE: Genetic engineering of plant chloroplasts

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Claims	Drawings	Comments
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☐ 2. Document ID: US 6642053 B1

L3: Entry 2 of 5

File: USPT

Nov 4, 2003

US-PAT-NO: 6642053

DOCUMENT-IDENTIFIER: US 6642053 B1

TITLE: Genetic engineering of plant chloroplasts

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Claims	Drawings	Comments
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☐ 3. Document ID: US 6004782 A

L3: Entry 3 of 5

File: USPT

Dec 21, 1999

US-PAT-NO: 6004782

DOCUMENT-IDENTIFIER: US 6004782 A

TITLE: Hyperexpression of bioelastic polypeptides

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Claims	Drawings	Comments
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☐ 4. Document ID: US 5932479 A

L3: Entry 4 of 5

File: USPT

Aug 3, 1999

US-PAT-NO: 5932479

DOCUMENT-IDENTIFIER: US 5932479 A

TITLE: Genetic engineering of plant chloroplasts

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstracts	Patents	Claims	KWIC	Draw. De
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☐ 5. Document ID: US 5693507 A

L3: Entry 5 of 5

File: USPT

Dec 2, 1997

US-PAT-NO: 5693507

DOCUMENT-IDENTIFIER: US 5693507 A

TITLE: Genetic engineering of plant chloroplasts

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstracts	Patents	Claims	KWIC	Draw. De
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Search Results - Record(s) 1 through 10 of 33 returned.

☐ 1. Document ID: US 6808904 B2

L13: Entry 1 of 33

File: USPT

Oct 26, 2004

US-PAT-NO: 6808904

DOCUMENT-IDENTIFIER: US 6808904 B2

TITLE: Herbicide-tolerant protox genes produced by DNA shuffling

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Claims	KWIC	Draw D
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☐ 2. Document ID: US 6803501 B2

L13: Entry 2 of 33

File: USPT

Oct 12, 2004

US-PAT-NO: 6803501

DOCUMENT-IDENTIFIER: US 6803501 B2

TITLE: Methods for making plants tolerant to glyphosate and compositions thereof using a DNA encoding an EPSPS enzyme from Eleusine indica

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Claims	KWIC	Draw D
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☐ 3. Document ID: US 6689589 B2

L13: Entry 3 of 33

File: USPT

Feb 10, 2004

US-PAT-NO: 6689589

DOCUMENT-IDENTIFIER: US 6689589 B2

**** See image for Certificate of Correction ****

TITLE: Biological systems for manufacture of polyhydroxyalkanoate polymers containing 4-hydroxyacids

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Claims	KWIC	Draw D
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☐ 4. Document ID: US 6686516 B2

L13: Entry 4 of 33

File: USPT

Feb 3, 2004

US-PAT-NO: 6686516

DOCUMENT-IDENTIFIER: US 6686516 B2

TITLE: Expression of trehalose 6-phosphate synthase in plant plastids

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Claims	KWIC	Drawings
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☐ 5. Document ID: US 6660911 B2

L13: Entry 5 of 33

File: USPT

Dec 9, 2003

US-PAT-NO: 6660911

DOCUMENT-IDENTIFIER: US 6660911 B2

TITLE: Plant expression constructs

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Claims	KWIC	Drawings
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☐ 6. Document ID: US 6657046 B1

L13: Entry 6 of 33

File: USPT

Dec 2, 2003

US-PAT-NO: 6657046

DOCUMENT-IDENTIFIER: US 6657046 B1

TITLE: Insect inhibitory lipid acyl hydrolases

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Claims	KWIC	Drawings
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☐ 7. Document ID: US 6624296 B1

L13: Entry 7 of 33

File: USPT

Sep 23, 2003

US-PAT-NO: 6624296

DOCUMENT-IDENTIFIER: US 6624296 B1

TITLE: Plastid promoters for transgene expression in the plastids of higher plants

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Claims	KWIC	Drawings
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☐ 8. Document ID: US 6586658 B1

L13: Entry 8 of 33

File: USPT

Jul 1, 2003

US-PAT-NO: 6586658

DOCUMENT-IDENTIFIER: US 6586658 B1

TITLE: Modification of fatty acid metabolism in plants

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Claims	KWIC	Drawings
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☐ 9. Document ID: US 6501009 B1

L13: Entry 9 of 33

File: USPT

Dec 31, 2002

US-PAT-NO: 6501009

DOCUMENT-IDENTIFIER: US 6501009 B1

TITLE: Expression of Cry3B insecticidal protein in plants

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Claims	KWIC	Draw D
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☐ 10. Document ID: US 6489542 B1

L13: Entry 10 of 33

File: USPT

Dec 3, 2002

US-PAT-NO: 6489542

DOCUMENT-IDENTIFIER: US 6489542 B1

TITLE: Methods for transforming plants to express Cry2Ab .delta.-endotoxins
targeted to the plastids

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Claims	KWIC	Draw D
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Search Results - Record(s) 11 through 20 of 33 returned.

☐ 11. Document ID: US 6472586 B1

L13: Entry 11 of 33

File: USPT

Oct 29, 2002

US-PAT-NO: 6472586

DOCUMENT-IDENTIFIER: US 6472586 B1

TITLE: Nuclear-encoded transcription system in plastids of higher plants

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequence	Drawings	Claims	KWIC	Draw De
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☐ 12. Document ID: US 6468523 B1

L13: Entry 12 of 33

File: USPT

Oct 22, 2002

US-PAT-NO: 6468523

DOCUMENT-IDENTIFIER: US 6468523 B1

TITLE: Polypeptide compositions toxic to diabrotic insects, and methods of use

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequence	Drawings	Claims	KWIC	Draw De
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☐ 13. Document ID: US 6462258 B1

L13: Entry 13 of 33

File: USPT

Oct 8, 2002

US-PAT-NO: 6462258

DOCUMENT-IDENTIFIER: US 6462258 B1

TITLE: Plant expression constructs

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequence	Drawings	Claims	KWIC	Draw De
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☐ 14. Document ID: US 6448476 B1

L13: Entry 14 of 33

File: USPT

Sep 10, 2002

US-PAT-NO: 6448476

DOCUMENT-IDENTIFIER: US 6448476 B1

TITLE: Plants and plant cells transformation to express an AMPA-N-acetyltransferase

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Claims	KWIC	Draw D
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☐ 15. Document ID: US 6388168 B1

L13: Entry 15 of 33

File: USPT

May 14, 2002

US-PAT-NO: 6388168

DOCUMENT-IDENTIFIER: US 6388168 B1

TITLE: DNA constructs and methods for stably transforming plastids of multicellular plants and expressing recombinant proteins therein

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Claims	KWIC	Draw D
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☐ 16. Document ID: US 6376744 B1

L13: Entry 16 of 33

File: USPT

Apr 23, 2002

US-PAT-NO: 6376744

DOCUMENT-IDENTIFIER: US 6376744 B1

TITLE: Plastid transformation in Arabidopsis thaliana

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Claims	KWIC	Draw D
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☐ 17. Document ID: US 6362398 B1

L13: Entry 17 of 33

File: USPT

Mar 26, 2002

US-PAT-NO: 6362398

DOCUMENT-IDENTIFIER: US 6362398 B1

TITLE: ClpP plastid promoter sequence

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Claims	KWIC	Draw D
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☐ 18. Document ID: US 6353153 B1

L13: Entry 18 of 33

File: USPT

Mar 5, 2002

US-PAT-NO: 6353153

DOCUMENT-IDENTIFIER: US 6353153 B1

TITLE: Enhanced transport with a plastid membrane transport protein

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Claims	KWIC	Draw D
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☐ 19. Document ID: US 6316262 B1

L13: Entry 19 of 33

File: USPT

Nov 13, 2001

US-PAT-NO: 6316262

DOCUMENT-IDENTIFIER: US 6316262 B1

TITLE: Biological systems for manufacture of polyhydroxyalkanoate polymers
containing 4-hydroxyacids

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstracts	Drawings	Claims	KWIC	Draw De
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☐ 20. Document ID: US 6308458 B1

L13: Entry 20 of 33

File: USPT

Oct 30, 2001

US-PAT-NO: 6308458

DOCUMENT-IDENTIFIER: US 6308458 B1

TITLE: Herbicide-tolerant plants and methods of controlling the growth of undesired
vegetation

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstracts	Drawings	Claims	KWIC	Draw De
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Search Results - Record(s) 21 through 30 of 33 returned.

☐ 21. Document ID: US 6294653 B1

L13: Entry 21 of 33

File: USPT

Sep 25, 2001

US-PAT-NO: 6294653

DOCUMENT-IDENTIFIER: US 6294653 B1

TITLE: RNA binding protein and binding site useful for expression of recombinant molecules

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Claims	KWIC	Draw De
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☐ 22. Document ID: US 6239332 B1

L13: Entry 22 of 33

File: USPT

May 29, 2001

US-PAT-NO: 6239332

DOCUMENT-IDENTIFIER: US 6239332 B1

**** See image for Certificate of Correction ****

TITLE: Constructs and methods for enhancing protein levels in photosynthetic organisms

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Claims	KWIC	Draw De
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☐ 23. Document ID: US 6156517 A

L13: Entry 23 of 33

File: USPT

Dec 5, 2000

US-PAT-NO: 6156517

DOCUMENT-IDENTIFIER: US 6156517 A

TITLE: RNA binding protein and binding site useful for expression of recombinant molecules

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Claims	KWIC	Draw De
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☐ 24. Document ID: US 6084155 A

L13: Entry 24 of 33

File: USPT

Jul 4, 2000

US-PAT-NO: 6084155

DOCUMENT-IDENTIFIER: US 6084155 A

TITLE: Herbicide-tolerant protoporphyrinogen oxidase ("protox") genes

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Abstract	Claims	KWIC	Drawn De
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☐ 25. Document ID: US 6023012 A

L13: Entry 25 of 33

File: USPT

Feb 8, 2000

US-PAT-NO: 6023012

DOCUMENT-IDENTIFIER: US 6023012 A

TITLE: DNA molecules encoding plant protoporphyrinogen oxidase

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Abstract	Claims	KWIC	Drawn De
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☐ 26. Document ID: US 6011198 A

L13: Entry 26 of 33

File: USPT

Jan 4, 2000

US-PAT-NO: 6011198

DOCUMENT-IDENTIFIER: US 6011198 A

**** See image for Certificate of Correction ****

TITLE: Constructs and methods for enhancing protein levels in photosynthetic organisms

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Abstract	Claims	KWIC	Drawn De
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☐ 27. Document ID: US 5939602 A

L13: Entry 27 of 33

File: USPT

Aug 17, 1999

US-PAT-NO: 5939602

DOCUMENT-IDENTIFIER: US 5939602 A

**** See image for Certificate of Correction ****

TITLE: DNA molecules encoding plant protoporphyrinogen oxidase and inhibitor-resistant mutants thereof

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Abstract	Claims	KWIC	Drawn De
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☐ 28. Document ID: US 5925806 A

L13: Entry 28 of 33

File: USPT

Jul 20, 1999

US-PAT-NO: 5925806

DOCUMENT-IDENTIFIER: US 5925806 A

TITLE: Controlled expression of transgenic constructs in plant plastids

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Full Text	Claims	KWIC	Draw D
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☐ 29. Document ID: US 5919999 A

L13: Entry 29 of 33

File: USPT

Jul 6, 1999

US-PAT-NO: 5919999

DOCUMENT-IDENTIFIER: US 5919999 A

**** See image for Certificate of Correction ****

TITLE: Enhanced transport with a plastid membrane transport protein

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Full Text	Claims	KWIC	Draw D
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☐ 30. Document ID: US 5891726 A

L13: Entry 30 of 33

File: USPT

Apr 6, 1999

US-PAT-NO: 5891726

DOCUMENT-IDENTIFIER: US 5891726 A

TITLE: Procedure to increase the seed productivity of plants and to accelerate the growth of plants by means of an additional plastidic pyruvate, phosphate dikinase

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Full Text	Claims	KWIC	Draw D
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Search Results - Record(s) 31 through 33 of 33 returned.

☐ 31. Document ID: US 5877402 A

L13: Entry 31 of 33

File: USPT

Mar 2, 1999

US-PAT-NO: 5877402

DOCUMENT-IDENTIFIER: US 5877402 A

**** See image for Certificate of Correction ****

TITLE: DNA constructs and methods for stably transforming plastids of multicellular plants and expressing recombinant proteins therein

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Drawings	Claims	KWIC	Draw. De
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☐ 32. Document ID: US 5576198 A

L13: Entry 32 of 33

File: USPT

Nov 19, 1996

US-PAT-NO: 5576198

DOCUMENT-IDENTIFIER: US 5576198 A

TITLE: Controlled expression of transgenic constructs in plant plastids

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Drawings	Claims	KWIC	Draw. De
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☐ 33. Document ID: US 5530191 A

L13: Entry 33 of 33

File: USPT

Jun 25, 1996

US-PAT-NO: 5530191

DOCUMENT-IDENTIFIER: US 5530191 A

TITLE: Method for producing cytoplasmic male sterility in plants and use thereof in production of hybrid seed

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Drawings	Claims	KWIC	Draw. De
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Terms	Documents
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=> s (daniell, h?)/au
L1 118 (DANIELL, H?)/AU

=> s (chloroplast? or plastid?)/ab,bi

L2 46716 (CHLOROPLAST? OR PLASTID?)/AB,BI

=> s l1 and l2
L3 62 L1 AND L2

=> s (transform? or transgen? or transplastom?)/ab,bi

L4 600057 (TRANSFORM? OR TRANSGEN? OR TRANSPLASTOM?)/AB,BI

=> s l3 and l4
L5 37 L3 AND L4

=> file biosis

=> s l5
L6 37 L3 AND L4

=> dup rem
L7 59 DUP REM L5 L6 (15 DUPLICATES REMOVED)

=> d l7 1-59 ti py

L7 ANSWER 1 OF 59 CA COPYRIGHT 2005 ACS on STN
TI Methods for synthesis of human insulin-like growth factor 1 in
transgenic plant ***chloroplasts*** for production of vaccine
PY 2004

L7 ANSWER 2 OF 59 CA COPYRIGHT 2005 ACS on STN
TI Expression of human interferon in ***transgenic***
chloroplasts
PY 2004
2004

L7 ANSWER 3 OF 59 CA COPYRIGHT 2005 ACS on STN
TI ***Chloroplast*** expression of genes for enzymes of mercury
metabolism and the phytoremediation of organomercurial contamination
PY 2004
2004

L7 ANSWER 4 OF 59 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation. on
STN
TI Genetic engineering of plant ***chloroplasts***
PY 2004

L7 ANSWER 5 OF 59 CA COPYRIGHT 2005 ACS on STN DUPLICATE 1
TI Enhanced translation of a ***chloroplast*** -expressed RbcS gene
restores small subunit levels and photosynthesis in nuclear RbcS antisense
plants
PY 2004

L7 ANSWER 6 OF 59 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation. on
STN
TI Expression of Bacillus anthracis protective antigen in ***transgenic***
chloroplasts of tobacco, a non-food/feed crop.

10/7 20,707 2/15/04

CAS
Biosis

PY 2004

L7 ANSWER 7 OF 59 CA COPYRIGHT 2005 ACS on STN DUPLICATE 2
TI ***Plastid*** -expressed betaine aldehyde dehydrogenase gene in carrot
cultured cells, roots, and leaves confers enhanced salt tolerance
PY 2004

L7 ANSWER 8 OF 59 CA COPYRIGHT 2005 ACS on STN
TI High-yield expression of a viral peptide animal vaccine in
transgenic tobacco ***chloroplasts***
PY 2004

L7 ANSWER 9 OF 59 CA COPYRIGHT 2005 ACS on STN
TI Expression of protective antigens in ***transgenic***
chloroplasts and the production of improved vaccines
PY 2003
2003
2004

L7 ANSWER 10 OF 59 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation. on
STN
TI Genetic engineering of plant ***chloroplasts***
PY 2003

L7 ANSWER 11 OF 59 CA COPYRIGHT 2005 ACS on STN DUPLICATE 3
TI Phytoremediation of organomercurial compounds via ***chloroplast***
genetic engineering
PY 2003

L7 ANSWER 12 OF 59 CA COPYRIGHT 2005 ACS on STN
TI Engineering the ***chloroplast*** genome for biotechnology
applications
PY 2003

L7 ANSWER 13 OF 59 CA COPYRIGHT 2005 ACS on STN
TI A ***chloroplast*** ***transgenic*** approach to hyper-express and
purify Human Serum Albumin, a protein highly susceptible to proteolytic
degradation
PY 2003

L7 ANSWER 14 OF 59 CA COPYRIGHT 2005 ACS on STN DUPLICATE 4
TI Accumulation of trehalose within ***transgenic*** ***chloroplasts***
confers drought tolerance
PY 2003

L7 ANSWER 15 OF 59 CA COPYRIGHT 2005 ACS on STN
TI Engineering the ***chloroplast*** genome to confer stress tolerance
and production of pharmaceutical proteins
PY 2002

L7 ANSWER 16 OF 59 CA COPYRIGHT 2005 ACS on STN DUPLICATE 5
TI Multigene engineering: dawn of an exciting new era in biotechnology
PY 2002

L7 ANSWER 17 OF 59 CA COPYRIGHT 2005 ACS on STN DUPLICATE 6
TI Milestones in ***chloroplast*** genetic engineering: An
environmentally friendly era in biotechnology
PY 2002

L7 ANSWER 18 OF 59 CA COPYRIGHT 2005 ACS on STN
TI Environmentally friendly approaches in biotechnology: engineering the
chloroplast genome to confer stress tolerance
PY 2002

L7 ANSWER 19 OF 59 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation. on
 STN
 TI Expression of Bacillus anthracis protective antigen in ***transgenic***
 chloroplasts towards the development of an improved vaccine or an
 edible vaccine.
 PY 2002

L7 ANSWER 20 OF 59 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation. on
 STN
 TI Optimization of codon composition and regulatory elements for expression
 of human insulin-like growth factor 1 in ***transgenic***
 chloroplasts .
 PY 2002

L7 ANSWER 21 OF 59 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation. on
 STN
 TI Expression of monoclonal antibodies in ***transgenic***
 chloroplasts .
 PY 2002

L7 ANSWER 22 OF 59 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation. on
 STN
 TI Expression of synthetic human hemoglobin genes in ***transgenic***
 tobacco ***chloroplasts*** .
 PY 2002

L7 ANSWER 23 OF 59 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation. on
 STN
 TI Manipulation of gene regulation in ***transgenic*** tobacco
 chloroplasts results in hyper-expression of human serum albumin,
 formation of inclusion bodies and facilitates purification.
 PY 2002

L7 ANSWER 24 OF 59 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation. on
 STN
 TI Efficient ***chloroplast*** ***transformation*** of tomato with an
 edible selectable marker. DUPLICATE 7
 PY 2002

L7 ANSWER 25 OF 59 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation. on
 STN
 TI Expression of the Bt (cry2Aa2) gene in ***transgenic*** cotton
 chloroplasts .
 PY 2002

L7 ANSWER 26 OF 59 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation. on
 STN
 TI Expression of glpA/B operon in ***transgenic*** ***chloroplasts***
 to degrade glyphosate.
 PY 2002

L7 ANSWER 27 OF 59 CA COPYRIGHT 2005 ACS on STN
 TI Production of human insulin-like growth factor I (IGF-I), human serum
 albumin (HAS), or interferons (IFN) via ***transgenic***
 chloroplast genome in tobacco
 PY 2001

L7 ANSWER 28 OF 59 CA COPYRIGHT 2005 ACS on STN
 TI ***Transgenic*** tobacco expressing SIGA genes to produce assembled
 antibody for therapeutic uses
 PY 2001

L7 ANSWER 29 OF 59 CA COPYRIGHT 2005 ACS on STN
 TI Expression of an antimicrobial peptide via the ***plastid*** genome to
 PY control phytopathogenic bacteria
 2001

L7 ANSWER 30 OF 59 CA COPYRIGHT 2005 ACS on STN
 TI ***Transgenic*** plants expressing yeast trehalose-6-phosphate
 PY synthase (TPS1) for tolerance of drought stress
 2001

L7 ANSWER 31 OF 59 CA COPYRIGHT 2005 ACS on STN
 TI Expression of multiple genes in a single operon in plants and uses as
 PY insecticides and in degrading inorganic or organic metal compounds in soil
 and water
 2001

L7 ANSWER 32 OF 59 CA COPYRIGHT 2005 ACS on STN
 TI Methods of engineering the ***chloroplast*** genome with
 PY antibiotic-free phytotoxic agents as a system of selection
 2001

L7 ANSWER 33 OF 59 CA COPYRIGHT 2005 ACS on STN DUPLICATE 8
 TI Expression of the Native Cholera Toxin B Subunit Gene and Assembly as
 PY Functional Oligomers in ***Transgenic*** Tobacco ***Chloroplasts***
 2001

L7 ANSWER 34 OF 59 CA COPYRIGHT 2005 ACS on STN DUPLICATE 9
 TI Expression of an antimicrobial peptide via the ***chloroplast***
 PY genome to control phytopathogenic bacteria and fungi
 2001

L7 ANSWER 35 OF 59 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation. on
 STN
 TI ***Chloroplast*** ***transgenic*** approach for the production of
 PY biopharmaceuticals and resolution of basic questions on gene expression.
 2001

L7 ANSWER 36 OF 59 CA COPYRIGHT 2005 ACS on STN
 TI Antibiotic-free ***chloroplast*** genetic engineering - an
 PY environmentally friendly approach
 2001

L7 ANSWER 37 OF 59 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation. on
 STN
 TI Antibiotic-free ***chloroplast*** genetic engineering: An
 PY environmentally friendly approach.
 2001

L7 ANSWER 38 OF 59 CA COPYRIGHT 2005 ACS on STN DUPLICATE 10
 TI Marker free ***transgenic*** plants: engineering the
 PY ***chloroplast*** genome without the use of antibiotic selection
 2001

L7 ANSWER 39 OF 59 CA COPYRIGHT 2005 ACS on STN DUPLICATE 11
 TI Overexpression of the Bt cry2Aa2 operon in ***chloroplasts*** leads to
 PY formation of insecticidal crystals
 2001

L7 ANSWER 40 OF 59 CA COPYRIGHT 2005 ACS on STN
 TI Stable expression of a biodegradable protein-based polymer in tobacco
 PY ***chloroplasts***
 2000

L7 ANSWER 41 OF 59 CA COPYRIGHT 2005 ACS on STN
 TI Universal ***chloroplast*** integration and expression vectors,
 PY ***transformed*** plants and their products
 1999

L7 ANSWER 42 OF 59 CA COPYRIGHT 2005 ACS on STN DUPLICATE 12
 TI Overexpression of the Bacillus thuringiensis (Bt) Cry2Aa2 protein in
 PY ***chloroplasts*** confers resistance to plants against susceptible and
 Bt-resistant insects
 1999

L7 ANSWER 43 OF 59 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation. on
 STN
 TI Environmentally friendly approaches to genetic engineering.
 PY 1999

L7 ANSWER 44 OF 59 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation. on
 STN
 TI Stable expression of a biodegradable protein-based polymer in tobacco
 PY ***chloroplasts***
 1999

L7 ANSWER 45 OF 59 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation. on
 STN
 TI ***Plastid*** - ***transformed*** rice.
 PY 1999

L7 ANSWER 46 OF 59 CA COPYRIGHT 2005 ACS on STN DUPLICATE 13
 TI Containment of herbicide resistance through genetic engineering of the
 PY ***chloroplast*** genome
 1998

L7 ANSWER 47 OF 59 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation. on
 STN
 TI ***Chloroplast*** ***transformation*** of rice.
 PY 1998

L7 ANSWER 48 OF 59 CA COPYRIGHT 2005 ACS on STN
 TI Genetic engineering of plant ***chloroplasts***
 PY 1997

L7 ANSWER 49 OF 59 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation. on
 STN
 TI ***Transformation*** and foreign gene expression in plants mediated by
 PY microprojectile bombardment.
 1997

L7 ANSWER 50 OF 59 CA COPYRIGHT 2005 ACS on STN
 TI ***Transformation*** and foreign gene expression in plants mediated by
 PY microprojectile bombardment
 1997

L7 ANSWER 51 OF 59 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation. on
 STN
 TI ***Transformation*** of the tobacco ***chloroplast*** genome with
 PY the araA gene to confer glyphosate tolerance.
 1996

L7 ANSWER 52 OF 59 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation. on
 STN
 TI Expression of a synthetic gene for biodegradable plastics in tobacco
 PY ***chloroplasts***
 1996

L7 ANSWER 53 OF 59 CA COPYRIGHT 2005 ACS on STN
 TI A novel method to study DNA replication in vivo in organelles
 PY 1993

L7 ANSWER 54 OF 59 CA COPYRIGHT 2005 ACS on STN
 TI Foreign gene expression in ***chloroplasts*** of higher plants
 mediated by tungsten particle bombardment
 PY 1993

L7 ANSWER 55 OF 59 CA COPYRIGHT 2005 ACS on STN
 TI Transient expression of .beta.-glucuronidase in different cellular
 compartments following biolistic delivery of foreign DNA into wheat leaves
 and calli
 PY 1991

L7 ANSWER 56 OF 59 CA COPYRIGHT 2005 ACS on STN DUPLICATE 14
 TI Optimization of delivery of foreign DNA into higher-plant
 chloroplasts
 PY 1990

L7 ANSWER 57 OF 59 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation. on
 STN
 TI RESTORATION OF DELETIONS IN THE ***CHLOROPLAST*** GENOME OF WHEAT
 POLLEN ALBINO PLANTS A MODEL SYSTEM FOR ***CHLOROPLAST***
 TRANSFORMATION
 PY 1990

L7 ANSWER 58 OF 59 CA COPYRIGHT 2005 ACS on STN
 TI Transient foreign gene expression in ***chloroplasts*** of cultured
 tobacco cells after biolistic delivery of ***chloroplast*** vectors
 PY 1990

L7 ANSWER 59 OF 59 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation. on
 STN
 TI INTERACTION FUNCTIONAL RELATIONS AND EVOLUTION OF LARGE AND SMALL SUBUNITS
 IN RUBISCO FROM PROKARYOTA AND EUKARYOTA.
 PY 1986

=> d 17 55-59 ab bib

L7 ANSWER 55 OF 59 CA COPYRIGHT 2005 ACS on STN
 AB Transient expression of .beta.-glucuronidase (GUS) in different cellular
 compartments followed biolistic delivery of ***chloroplast*** or
 nuclear expression vectors into wheat leaves or calli, derived from anther
 culture or immature embryos, is reported. When pBI121, the nuclear GUS
 vector, was used in bombard wheat cells, the .beta.-glucuronidase product,
 an insol. indigo dye, was obsd. evenly throughout the cytosol. But, when
 the ***chloroplast*** expression vector pHD203-GUS was used for
 bombardments, the indigo dye (GUS product) was subcellularly localized
 within the ***chloroplasts*** of wheat cells. The observation of GUS
 expression in albino ***plastids***, when anther culture derived
 albino leaves were bombarded with the ***chloroplast*** expression
 vector pHD203-GUS, suggests the presence of a functional protein synthetic
 machinery in these organelles. GUS expression was also obsd. in
 regenerable calli derived from wheat immature embryos bombarded with
 pHD203-GUS. Leaves or calli bombarded with pUC19, as neg. controls, did
 not show any GUS expression. These results constitute the 1st
 demonstration of foreign gene expression in ***chloroplasts*** of a
 monocot and that a dicot ***chloroplast*** promoter functions in a
 monocot ***chloroplast***.

AN 115:43339 CA

TI Transient expression of .beta.-glucuronidase in different cellular compartments following biolistic delivery of foreign DNA into wheat leaves and calli

AU ***Daniell, H.*** ; Krishnan, M.; McFadden, B. F.
CS Dep. Biol. Sci., Univ. Idaho, Moscow, ID, 83843, USA
SO Plant Cell Reports (1991), 9(11), 615-19
CODEN: PCRPD8; ISSN: 0721-7714
DT Journal
LA English

have

L7 ANSWER 56 OF 59 CA COPYRIGHT 2005 ACS on STN DUPLICATE 14

AB An efficient and highly reproducible delivery system was developed, using an improved biolistic ***transformation*** device, that facilitates transient expression of .beta.-glucuronidase (GUS) in ***chloroplasts*** of cultured tobacco suspension cells. Cultured tobacco cells collected on filter papers were bombarded with tungsten particles coated with pUC118 or pBI101.3 (neg. controls), bBI505 (pos. nuclear control) or a ***chloroplast*** expression vector (pHD203-GUS), and were assayed for GUS activity. No GUS activity was detected in cells bombarded with pUC118 or pBI101.3. Cells bombarded with pBI505 showed high levels of expression with blue color being distributed evenly throughout the whole cytosol of the ***transformants***. PHD203-GUS was expressed exclusively in ***chloroplasts***. This conclusion was based on: (i) the prokaryotic nature of the promoter used in the ***chloroplast*** expression vector; (ii) delayed GUS staining; (iii) localization of blue color within subcellular compartments corresponding to ***plastids*** in both shape and size; and (iv) confirmation of organelle-specific expression of pHD203-GUS using PEG-mediated protoplast ***transformation***. ***Chloroplast*** ***transformation*** efficiencies increased dramatically (about 200-fold) using an improved helium-driven biolistic device, as compared to the more commonly used gun powder charge-driven device. Using GUS as a reporter gene and the improved biolistic device, optimal bombardment conditions were established, consistently producing several hundred transient ***chloroplast*** ***transformants*** per Petri plate. ***Chloroplast*** ***transformation*** efficiency was found to be increased further (20-fold) with supplemental osmoticum (0.55 M sorbitol and 0.55 M mannitol) in the bombardment and incubation medium. This system provides a highly effective mechanism for introducing and expressing plasmid DNA within higher-plant ***chloroplasts***, and the fact that GUS functions as an effective marker gene now makes many genetic studies possible which were not possible before.

AN 114:116271 CA
TI Optimization of delivery of foreign DNA into higher-plant ***chloroplasts***

have

AU Ye, Guang Ning; ***Daniell, Henry*** ; Sanford, John C.
CS Dep. Hortic. Sci., Cornell Univ., Geneva, NY, 14456, USA
SO Plant Molecular Biology (1990), 15(6), 809-19
CODEN: PMBIDB; ISSN: 0167-4412
DT Journal
LA English

L7 ANSWER 57 OF 59 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation. on STN

AN 1990:506243 BIOSIS
DN PREV199039118239; BR39:118239
TI RESTORATION OF DELETIONS IN THE ***CHLOROPLAST*** GENOME OF WHEAT POLLEN ALBINO PLANTS A MODEL SYSTEM FOR ***CHLOROPLAST*** ***TRANSFORMATION***

AU HOLME I [Reprint author]; ZEMETRA R; ***DANIELL H***
CS DEP BIOL SCI, UNIV IDAHO, MOSCOW, IDAHO 83843, USA
SO Journal of Cellular Biochemistry Supplement, (1990) No. 14 PART E, pp. 281.

Meeting Info.: SYMPOSIUM ON MOLECULAR STRATEGIES FOR CROP IMPROVEMENT HELD AT THE 19TH ANNUAL UCLA (UNIVERSITY OF CALIFORNIA-LOS ANGELES) SYMPOSIA ON MOLECULAR AND CELLULAR BIOLOGY, KEYSTONE, COLORADO, USA, APRIL 16-22, 1990. J CELL BIOCHEM SUPPL.

ISSN: 0733-1959.

DT Conference; (Meeting)

FS BR

LA ENGLISH

ED Entered STN: 10 Nov 1990

Last Updated on STN: 10 Nov 1990

L7 ANSWER 58 OF 59 CA COPYRIGHT 2005 ACS on STN

AB Expression of chloramphenicol acetyltransferase (cat) by suitable vectors in ***chloroplasts*** of cultured tobacco cells, delivered by high-velocity microprojectiles, is reported here. Several ***chloroplast*** expression vectors contg. bacterial cat genes, placed under the control of either the psbA promoter region from pea (pHD series) or the rbcL promoter region from maize (pAC series) have been used in this study. In addn., ***chloroplast*** expression vectors contg. replicon fragments from pea, tobacco, or maize ***chloroplast*** DNA have also been tested for efficiency and duration of cat expression in ***chloroplasts*** of tobacco cells. Cultured NT1 tobacco cells collected on filter papers were bombarded with tungsten particles coated with pUC118 (neg. control), 35S-CAT (nuclear expression vector), pHD312 (repliconless ***chloroplast*** expression vector), and pHD407, pACp18, and pACp19 (***chloroplast*** expression vectors with replicon). Sonic exts. of cells bombarded with pUC118 showed no detectable cat activity in the autoradiograms. Nuclear expression of cat reached two-thirds of the maximal 48 h after bombardment and the maximal at 72 h. Cells bombarded with ***chloroplast*** expression vectors showed a low level of expression until 48 h of incubation. A dramatic increase in the expression of cat was obsd. 24 h after the addn. of fresh medium to cultured cells in samples bombarded with pHD407; the repliconless vector pHD312 showed about 50% of this maximal activity. The expression of nuclear cat and the repliconless ***chloroplast*** vector decreased after 72 h, but a high level of ***chloroplast*** cat expression was maintained in cells bombarded with pHD407. Organelle-specific expression of cat in appropriate compartments was checked by introducing various plasmid constructions into tobacco protoplasts by electroporation. Although the nuclear expression vector 35S-CAT showed expression of cat, no activity was obsd. with any ***chloroplast*** vectors.

AN 112:71471 CA

TI Transient foreign gene expression in ***chloroplasts*** of cultured tobacco cells after biolistic delivery of ***chloroplast*** vectors

AU ***Daniell, H.*** ; Vivekananda, J.; Nielsen, B. L.; Ye, G. N.; Tewari, K. K.; Sanford, J. C.

CS Dep. Biol. Sci., Univ. Idaho, Moscow, ID, 83843, USA

SO Proceedings of the National Academy of Sciences of the United States of America (1990), 87(1), 88-92

CODEN: PNASA6; ISSN: 0027-8424

DT Journal

LA English

L7 ANSWER 59 OF 59 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation. on STN

AB In early biological evolution anoxygenic photosynthetic bacteria may have been established through the acquisition of ribulose biphosphate carboxylase-oxygenase (Rubisco). The establishment of cyanobacteria may have followed and led to the production of atmospheric oxygen. It has been postulated that a unicellular cyanobacterium evolved to cyanelles which were evolutionary precursors of ***chloroplasts*** of both green and non-green algae. The latter probably diverged from ancestors of green

algae as evidenced by the occurrence of large (L) and small (S) subunit genes for Rubisco in the ***chloroplast*** genome of the chromophytic algae *Olisthodiscus luteus*. In contrast, the gene for the S subunit was integrated into the nucleus in the evolution of green algae and higher plants. The evolutionary advantages of this integration are uncertain because the function of S subunits is unknown. Recently, two forms of Rubisco (L8 and L8S8) of almost equivalent carboxylase and oxygenase activity have been isolated from the photosynthetic bacterium *Chromatium vinosum*. This observation perpetuates the enigma of S subunit function. Current breakthroughs are imminent, however, in our understanding of the function of catalytic L subunits because of the application of deoxyoligonucleotide-directed mutagenesis. Especially interesting mutated Rubisco molecules may have either enhanced carboxylase activity or higher carboxylase:oxygenase ratios. Tests of expression, however, must await the insertion of modified genes into the nucleus and ***chloroplasts***. Methodology to accomplish ***chloroplast*** ***transformation*** is as yet unavailable. Recently, we have obtained the first ***transformation*** of cyanobacteria by a *colE1* plasmid. We regard this ***transformation*** as an appropriate model for ***chloroplast*** ***transformation***.

AN 1987:130376 BIOSIS
 DN PREV198783069437; BA83:69437
 TI INTERACTION FUNCTIONAL RELATIONS AND EVOLUTION OF LARGE AND SMALL SUBUNITS
 IN RUBISCO FROM PROKARYOTA AND EUKARYOTA.
 AU MCFADDEN B A [Reprint author]; TORRES-RUIZ J; ***DANIELL H*** ;
 SAROJINI G
 CS BIOCHEMISTRY/BIOPHYSICS PROGRAM, WASHINGTON STATE UNIVERSITY, PULLMAN,
 WASHINGTON 99164-4660, USA
 SO Philosophical Transactions of the Royal Society of London B Biological
 Sciences, (1986) Vol. 313, No. 1162, pp. 347-358.
 ISSN: 0962-8436.
 DT Article
 FS BA
 LA ENGLISH
 ED Entered STN: 7 Mar 1987
 Last Updated on STN: 7 Mar 1987

=> file ca

=> s (mcfadden, b?)/au
 L8 183 (MCFADDEN, B?)/AU

=> s l8 and l2
 L9 5 L8 AND L2

=> s l9 not l3
 L10 1 L9 NOT L3

=> file biosis
 => s l10
 L11 0 L9 NOT L3

=> file ca

=> d l10

L10 ANSWER 1 OF 1 CA COPYRIGHT 2005 ACS on STN
 AN 119:245958 CA
 TI Location of Rubisco and chaperonin 60 in *Flaveria* species by
 immunoelectron microscopy
 AU Torres-Ruiz, Jose A.; Franceschi, Vincent R.; ***McFadden, Bruce A.***

CS Dep. Biochem., Ponce Sch. Med., Ponce, 00732, P. R.
SO Res. Photosynth., Proc. Int. Congr. Photosynth., 9th (1992), Volume 3,
625-8. Editor(s): Murata, Norio. Publisher: Kluwer, Dordrecht, Neth.
CODEN: 59IZA5
DT Conference
LA English

=> d l10 ab

=> s ((5(2w)untranslated(w)region?) or (5(2w)utr?))/ab,bi

L12 7029 ((5(2W)UNTRANSLATED(W)REGION?) OR (5(2W)UTR?))/AB,BI

=> s l2 and l4

L13 2716 L2 AND L4

=> s l12 and l13

L15 42 L12 AND L13

=> s l15 not l5

L16 37 L15 NOT L5

=> file biosis

=> s l16

L17 24 L15 NOT L5

=> dup rem

L18 37 DUP REM L16 L17 (24 DUPLICATES REMOVED)

=> d l18 1-37 ti py

L18 ANSWER 1 OF 37 CA COPYRIGHT 2005 ACS on STN DUPLICATE 1
TI Cytokinin stimulates polyribosome loading of nuclear-encoded mRNAs for the
plastid ATP synthase in etioplasts of *Lupinus luteus*: the complex
accumulates in the inner-envelope membrane with the CF1 moiety located
towards the stromal space
PY 2004

L18 ANSWER 2 OF 37 CA COPYRIGHT 2005 ACS on STN DUPLICATE 2
TI Development of a luciferase reporter gene, luxCt, for *Chlamydomonas*
reinhardtii ***chloroplast***
PY 2004

L18 ANSWER 3 OF 37 CA COPYRIGHT 2005 ACS on STN
TI Use of ***chloroplast*** transcription and translation signals and
codon bias in expression of foreign genes in photosynthetic cells
PY 2003
2004

L18 ANSWER 4 OF 37 CA COPYRIGHT 2005 ACS on STN DUPLICATE 3
TI The 5'-proximal hairpin of turnip yellow mosaic virus RNA: Its role in
translation and encapsidation
PY 2003

L18 ANSWER 5 OF 37 CA COPYRIGHT 2005 ACS on STN DUPLICATE 4
TI Multiple translational control sequences in the 5' leader of the
chloroplast psbC mRNA interact with nuclear gene products in
Chlamydomonas reinhardtii
PY 2003

L18 ANSWER 6 OF 37 CA COPYRIGHT 2005 ACS on STN DUPLICATE 5
 TI The stem-loop region of the tobacco psbA5'UTR is an important determinant
 of mRNA stability and translation efficiency
 PY 2003

L18 ANSWER 7 OF 37 CA COPYRIGHT 2005 ACS on STN DUPLICATE 6
 TI Effect of coding regions on ***chloroplast*** gene expression in
 Chlamydomonas reinhardtii
 PY 2003

L18 ANSWER 8 OF 37 CA COPYRIGHT 2005 ACS on STN
 TI Construction of bicistronic- ***transgene*** expression vectors
 containing internal ribosome entry site (IRES) regulated selectable marker
 for ***transgenic*** plants
 PY 2002

L18 ANSWER 9 OF 37 CA COPYRIGHT 2005 ACS on STN
 TI Overexpression of the clpP ***5*** '- ***untranslated***
 region in a chimeric context causes a mutant phenotype, suggestin
 competition for a clpP-specific RNA maturation factor in tobacco
 chloroplasts
 PY 2002

L18 ANSWER 10 OF 37 CA COPYRIGHT 2005 ACS on STN DUPLICATE 7
 TI Development of a GFP reporter gene for Chlamydomonas reinhardtii
 chloroplast
 PY 2002

L18 ANSWER 11 OF 37 CA COPYRIGHT 2005 ACS on STN
 TI Protoporphyrinogen oxidase genes of crop plants and their use in the
 development of herbicide-resistant plants
 PY 2001

L18 ANSWER 12 OF 37 CA COPYRIGHT 2005 ACS on STN
 TI Specific sequence elements in the ***5*** ' ***untranslated***
 regions of rbcL and atpB gene mRNAs stabilize transcripts in the
 chloroplast of Chlamydomonas reinhardtii
 PY 2001

L18 ANSWER 13 OF 37 CA COPYRIGHT 2005 ACS on STN
 TI Method for producing ***transgenic*** plants resistant to glyphosate
 herbicides
 PY 2000

L18 ANSWER 14 OF 37 CA COPYRIGHT 2005 ACS on STN
 TI Translation control elements for high-level protein expression in the
 plastids of higher plants and methods of use thereof
 PY 2000

L18 ANSWER 15 OF 37 CA COPYRIGHT 2005 ACS on STN DUPLICATE 8
 TI cis- and trans-acting determinants for translation of psbD mRNA in
 Chlamydomonas reinhardtii
 PY 2000

L18 ANSWER 16 OF 37 CA COPYRIGHT 2005 ACS on STN DUPLICATE 9
 TI The sequence and secondary structure of the 3'-UTR affect 3'-end
 maturation, RNA accumulation, and translation in tobacco
 chloroplasts
 PY 2000

L18 ANSWER 17 OF 37 CA COPYRIGHT 2005 ACS on STN
 TI Methods and means for expression of mammalian polypeptides in
 monocotyledonous plants

PY 1999

L18 ANSWER 18 OF 37 CA COPYRIGHT 2005 ACS on STN
TI Genes encoding herbicide inhibitor-resistant mutants of plant
protoporphyrinogen oxidase and ***transgenic*** plants expressing same
PY 1998

L18 ANSWER 19 OF 37 CA COPYRIGHT 2005 ACS on STN DUPLICATE 10
TI Mutations altering the predicted secondary structure of a
chloroplast ***5*** ' ***untranslated*** ***region***
affect its physical and biochemical properties as well as its ability to
promote translation of reporter mRNAs both in the Chlamydomonas
reinhardtii ***chloroplast*** and in Escherichia coli
PY 1999

L18 ANSWER 20 OF 37 CA COPYRIGHT 2005 ACS on STN DUPLICATE 11
TI Identification of cis-acting RNA leader elements required for
chloroplast psbD gene expression in Chlamydomonas
PY 1999

L18 ANSWER 21 OF 37 CA COPYRIGHT 2005 ACS on STN DUPLICATE 12
TI Renilla luciferase as a vital reporter for ***chloroplast*** gene
expression in Chlamydomonas
PY 1999

L18 ANSWER 22 OF 37 CA COPYRIGHT 2005 ACS on STN DUPLICATE 13
TI In vivo analysis of ***plastid*** psbA, rbcL and rpl32 UTR elements by
chloroplast ***transformation*** : tobacco ***plastid***
gene expression is controlled by modulation of transcript levels and
translation efficiency
PY 1999

L18 ANSWER 23 OF 37 CA COPYRIGHT 2005 ACS on STN DUPLICATE 14
TI Expression of a foreign gene in Chlamydomonas reinhardtii
chloroplast
PY 1999

L18 ANSWER 24 OF 37 CA COPYRIGHT 2005 ACS on STN
TI Increased mRNA stability compensates for reduced dark rbcL transcription
rates in tobacco ***plastids***
PY 1998

L18 ANSWER 25 OF 37 CA COPYRIGHT 2005 ACS on STN DUPLICATE 15
TI rbcL transcript levels in tobacco ***plastids*** are independent of
light: reduced dark transcription rate is compensated by increased mRNA
stability
PY 1998

L18 ANSWER 26 OF 37 CA COPYRIGHT 2005 ACS on STN DUPLICATE 16
TI Analysis of promoter activity for the gene encoding pyruvate
orthophosphate dikinase in stably ***transformed*** C4 Flaveria
species
PY 1998

L18 ANSWER 27 OF 37 CA COPYRIGHT 2005 ACS on STN
TI ***Chloroplast*** RNA stability
PY 1998

L18 ANSWER 28 OF 37 CA COPYRIGHT 2005 ACS on STN DUPLICATE 17
TI In vivo evidence for 5'.fwdarw.3' exoribonuclease degradation of an
unstable ***chloroplast*** mRNA
PY 1998

L18 ANSWER 29 OF 37 CA COPYRIGHT 2005 ACS on STN DUPLICATE 18
 TI A nuclear-encoded function essential for translation of the
 chloroplast psaB mRNA in Chlamydomonas
 PY 1997

L18 ANSWER 30 OF 37 CA COPYRIGHT 2005 ACS on STN
 TI RNA stability and translational regulatory elements in the ***5***
 untranslated ***regions*** of two Chlamydomonas
 chloroplast transcripts
 PY 1997

L18 ANSWER 31 OF 37 CA COPYRIGHT 2005 ACS on STN DUPLICATE 19
 TI Post-transcriptional regulation of ***chloroplast*** gene expression
 in Chlamydomonas reinhardtii
 PY 1996

L18 ANSWER 32 OF 37 CA COPYRIGHT 2005 ACS on STN DUPLICATE 20
 TI petD mRNA maturation in Chlamydomonas reinhardtii ***chloroplasts*** :
 role of 5' endonucleolytic processing
 PY 1994

L18 ANSWER 33 OF 37 CA COPYRIGHT 2005 ACS on STN DUPLICATE 21
 TI The petD gene is transcribed by functionally redundant promoters in
 Chlamydomonas reinhardtii ***chloroplasts***
 PY 1994

L18 ANSWER 34 OF 37 CA COPYRIGHT 2005 ACS on STN DUPLICATE 22
 TI Translation of psb A mRNA is regulated by light via the ***5*** '-
 untranslated ***region*** in tobacco ***plastids***
 PY 1994

L18 ANSWER 35 OF 37 CA COPYRIGHT 2005 ACS on STN DUPLICATE 23
 TI Function of the Chlamydomonas reinhardtii petD ***5*** '
 untranslated ***region*** in regulating the accumulation of
 subunit IV of the cytochrome b6/f complex
 PY 1994

L18 ANSWER 36 OF 37 CA COPYRIGHT 2005 ACS on STN DUPLICATE 24
 TI In vivo analysis of Chlamydomonas ***chloroplast*** petD gene
 expression using stable ***transformation*** of .beta.-glucuronidase
 translational fusions
 PY 1993

L18 ANSWER 37 OF 37 CA COPYRIGHT 2005 ACS on STN
 TI Molecular genetic analysis of C4 photosynthesis
 PY 1992

=> d l18 ab bib 9 12 16 19 22

L18 ANSWER 9 OF 37 CA COPYRIGHT 2005 ACS on STN
 AB The ***plastid*** rRNA (rrn) operon promoter was fused with DNA
 segments encoding the leader sequence (***5*** '- ***untranslated***
 region [***UTR***]) of ***plastid*** mRNAs to compare
 their efficiency in mediating translation of a bacterial protein neomycin
 phosphotransferase (NPTII) in tobacco (Nicotiana tabacum)
 chloroplasts . In young leaves, NPTII accumulated at 0.26% and
 0.8% of the total sol. leaf protein from genes with the clpP and atpB
 5 '- ***UTR*** , resp. Interestingly, expression of NPTII from
 the promoter with the clpP ***5*** '- ***UTR*** (0.26% NPTII) caused
 a mutant (chlorotic) phenotype, whereas plants accumulating approx. 0.8%
 NPTII from the atpB ***5*** '- ***UTR*** were normal green,
 indicating that the mutant phenotype was independent of NPTII

accumulation. Low levels of monocistronic clpP mRNA and accumulation of intron-contg. clpP transcripts in the chlorotic leaves suggest competition between the clpP ***5*** '- ***UTR*** in the chimeric transcript and the native clpP pre-mRNA (ratio 16:1) for an mRNA maturation factor. Because maturation of 11 other intron-contg. mRNAs was unaffected in the chlorotic leaves, it appears that the factor is clpP specific. The mutant phenotype is correlated with reduced levels (approx. 2 times) of the ClpP1 protease subunit, supporting an important role for ClpP1 in ***chloroplast*** development.

AN 137:305656 CA

TI Overexpression of the clpP ***5*** '- ***untranslated***
region in a chimeric context causes a mutant phenotype, suggesting competition for a clpP-specific RNA maturation factor in tobacco ***chloroplasts***

AU Kuroda, Hiroshi; Maliga, Pal

CS Waksman Institute, Rutgers, The State University of New Jersey, Piscataway, NJ, 08854-8020, USA

SO Plant Physiology (2002), 129(4), 1600-1606

CODEN: PLPHAY; ISSN: 0032-0889

PB American Society of Plant Biologists

DT Journal

LA English

RE.CNT 41 THERE ARE 41 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L18 ANSWER 12 OF 37 CA COPYRIGHT 2005 ACS on STN

AB Using a series of point mutations in chimeric reporter gene constructs consisting of the 5' regions of the Chlamydomonas ***chloroplast*** rbcL or atpB genes fused 5' to the coding sequence of the bacterial uidA (GUS) gene, RNA-stabilizing sequence elements were identified in vivo in the ***5*** ' ***untranslated*** ***regions*** (***5*** ' ***UTRs***) of transcripts of the ***chloroplast*** genes rbcL and atpB in Chlamydomonas reinhardtii. In chimeric rbcL ***5*** ' ***UTR*** :GUS transcripts, replacement of single nucleotides in the 10-nt sequence 5'-AUUCCGGAC-3', extending from positions +38 to +47 relative to the transcripts' 5' terminus, shortened transcript longevity and led to a redn. in transcript abundance of more than 95%. A similar mutational anal. of atpB ***5*** ' ***UTR*** :GUS transcripts showed that the 12-nt atpB ***5*** ' ***UTR*** sequence 5'-AUAAGCGUAGU-3', extending from position +31 to position +42, is important for transcript stability and transcript accumulation in the ***chloroplast*** of Chlamydomonas. We discuss how the ***5*** ' ***UTR*** sequence elements, which are predicted to be part of RNA secondary structures, might function in RNA stabilization.

AN 135:222249 CA

TI Specific sequence elements in the ***5*** ' ***untranslated***
regions of rbcL and atpB gene mRNAs stabilize transcripts in the ***chloroplast*** of Chlamydomonas reinhardtii

AU Anthonisen, Inger Lill; Salvador, Maria L.; Klein, Uwe

CS Department of Biology, University of Oslo, Oslo, 0316, Norway

SO RNA (2001), 7(7), 1024-1033

CODEN: RNARFU; ISSN: 1355-8382

PB Cambridge University Press

DT Journal

LA English

RE.CNT 53 THERE ARE 53 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L18 ANSWER 16 OF 37 CA COPYRIGHT 2005 ACS on STN DUPLICATE 9

AB RNA maturation and modulation of RNA stability play important roles in ***chloroplast*** gene expression. In vitro and in vivo studies have shown that both the ***5*** '- and 3'- ***untranslated***
regions (UTRs) contain sequence and structural elements that guid

these processes, and interact with specific proteins. We have previously characterized the spinach ***chloroplast*** petD 3'-UTR in detail by in vitro approaches. This stem-loop forming sequence is a weak terminator but is required for RNA maturation and also exhibits sequence-specific protein binding. To test petD 3'-UTR function in vivo, tobacco

chloroplast ***transformants*** were generated contg. uidA reporter genes flanked by variants of the petD 3'-UTR, including one which does not form an RNA-protein complex in vitro, and one which lacks a stem-loop structure. Anal. of uidA mRNA indicated that a stable secondary structure is required to accumulate a discrete mRNA, and that changes in the 3'-UTR sequence which affect protein binding in vitro can also affect RNA metab. in vivo. The 3'-UTR also influenced .beta.-glucuronidase protein accumulation, but not in proportion to RNA levels. These results raise the possibility that in tobacco ***chloroplasts***, the 3'-UTR may influence translational yield.

AN 135:105161 CA

TI The sequence and secondary structure of the 3'-UTR affect 3'-end maturation, RNA accumulation, and translation in tobacco
chloroplasts

AU Monde, Rita-Ann; Greene, Jessica C.; Stern, David B.

CS Department of Molecular Biology and Genetics, Boyce Thompson Institute for Plant Research, Cornell University, Ithaca, NY, 14853, USA

SO Plant Molecular Biology (2000), 44(4), 529-542

CODEN: PMBIDB; ISSN: 0167-4412

PB Kluwer Academic Publishers

DT Journal

LA English

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L18 ANSWER 19 OF 37 CA COPYRIGHT 2005 ACS on STN DUPLICATE 10

AB Random mutations were generated in the sequence for the ***5*** ' ***untranslated*** ***region*** (***5*** ' ***UTR***) of the Chlamydomonas reinhardtii ***chloroplast*** rps7 mRNA by PCR, the coding sequence for the mutant leaders fused upstream of the lacZ' reporter in pUC18, and ***transformed*** into Escherichia coli, and white colonies were selected. Twelve single base pair changes were found at different positions in the rps7 ***5*** ' ***UTR*** in 207 white colonies examd. Seven of the 12 mutant leaders allowed accumulation of abundant lacZ' message. These mutant rps7 leaders were ligated into an aadA expression cassette and ***transformed*** into the ***chloroplast*** of C. reinhardtii and into E. coli. In vivo spectinomycin-resistant growth rates and in vitro aminoglycoside adenylyltransferase enzyme activity varied considerably between different mutants but were remarkably similar for a given mutant expressed in the Chlamydomonas ***chloroplast*** and in E. coli. The variable effect of the mutants on aadA reporter expression and their complete abolition of lacZ' reporter expression in E. coli suggests differences in the interaction between the ***5*** ' ***UTR*** of rps7 and aadA or lacZ' coding regions. Several rps7 ***5*** ' ***UTR*** mutations affected the predicted folding pattern of the ***5*** ' ***UTR*** by weakening the stability of stem structures. Site-directed secondary mutations generated to restore these structures in the second stem suppressed the loss of reporter activity caused by the original mutations. Addnl. site-directed mutations that were predicted to further strengthen (A-U.fwdarw.G-C) or weaken (G-C.fwdarw.A-U) the second stem of the rps7 leader both resulted in reduced reporter expression. This genetic evidence combined with differences between mutant and wild-type UV melting profiles and RNase T1 protection gel shifts further indicate that the predicted wild-type folding pattern in the ***5*** ' ***UTR*** is likely to play an essential role in translation initiation.

AN 132:1287 CA

TI Mutations altering the predicted secondary structure of a

chloroplast ***5*** ' ***untranslated*** ***region***
affect its physical and biochemical properties as well as its ability to
promote translation of reporter mRNAs both in the Chlamydomonas
reinhardtii ***chloroplast*** and in Escherichia coli ✓
AU Fargo, David C.; Boynton, John E.; Gillham, Nicholas W.
CS Developmental, Cell and Molecular Biology Group, Departments of Botany and
Zoology, Duke University, Durham, NC, 27708, USA
SO Molecular and Cellular Biology (1999), 19(10), 6980-6990
CODEN: MCEBD4; ISSN: 0270-7306
PB American Society for Microbiology
DT Journal
LA English
RE.CNT 44 THERE ARE 44 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L18 ANSWER 22 OF 37 CA COPYRIGHT 2005 ACS on STN DUPLICATE 13
AB ***5*** ' And 3' ***untranslated*** ***regions*** (UTRs) of
 plastid RNAs act as regulatory elements for post-transcriptional
control of gene expression. Polyethylene glycol-mediated ***plastid***
 transformation with UTR-GUS reporter gene fusions was used to
study the function of the psbA, rbcL and rpl32 UTRs in vivo. All gene
fusions were expressed from the same promoter, i.e. the promoter of the
16S-rRNA gene, such that variations in RNA and protein levels would be due
to the involved UTR elements alone. ***Transgenic*** tobacco lines
contg. different combinations of UTRs showed fivefold variation in the
uidA-mRNA level (RNA stability) and approx. 100-fold differences in GUS
activity, a measure of translation activity. The rbcL ***5*** '-
 UTR conferred greater mRNA stability than the psbA ***5*** '-
 UTR on uidA transcripts. In contrast, the psbA ***5*** '-
 UTR enhanced translation of GUS to a much greater extent compared
to the rbcL ***5*** '- ***UTR*** . The psbA ***5*** '- ***UTR***
also mediated light-induced activation of translation which was not obsd.
with other constructs. Deletion mutagenesis of an unanalyzed terminal
sequence element of the psbA ***5*** '- ***UTR*** resulted in a
twofold drop in uidA-mRNA level and a fourfold decrease in translation
efficiency. Exchange of 3'-UTRs results in up to fivefold changes of mRNA
levels and does not significantly influence translation efficiency. The
mech. impacts of these results on ***plastid*** translation regulation
are discussed.

AN 132:147499 CA
TI In vivo analysis of ***plastid*** psbA, rbcL and rpl32 UTR elements by
 chloroplast ***transformation*** : tobacco ***plastid***
gene expression is controlled by modulation of transcript levels and
translation efficiency
AU Eibl, Christian; Zou, Zhurong; Beck, Andreas; Kim, Minkyun; Mullet, John;
Koop, Hans-Ulrich
CS Botanical Institute, Ludwig-Maximilians-Universitat, Munich, 80638,
Germany
SO Plant Journal (1999), 19(3), 333-345
CODEN: PLJUED; ISSN: 0960-7412 Aug ✓
PB Blackwell Science Ltd.
DT Journal
LA English
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